



It's a Small World (Afterall)...

## A New Energy Order

New York

Globalization → Interdependence

→ Shocks & Vulnerabilities

Lagos

São Paulo Rio de Janeiro **Buenos Aires** 

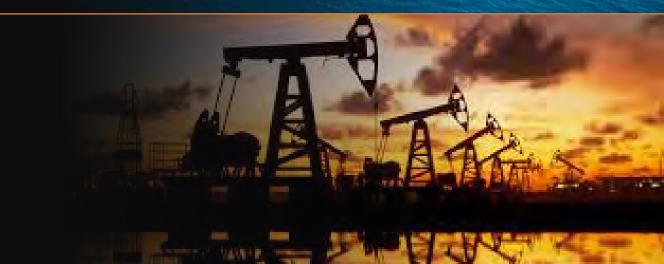




US: A Superpower but No Longer an Uncontested Hegemon



- \*Leading Oil & Gas Producer (2010s)
- \*Leading LNG exporter (2022)



Transformed Geopolitics of Energy





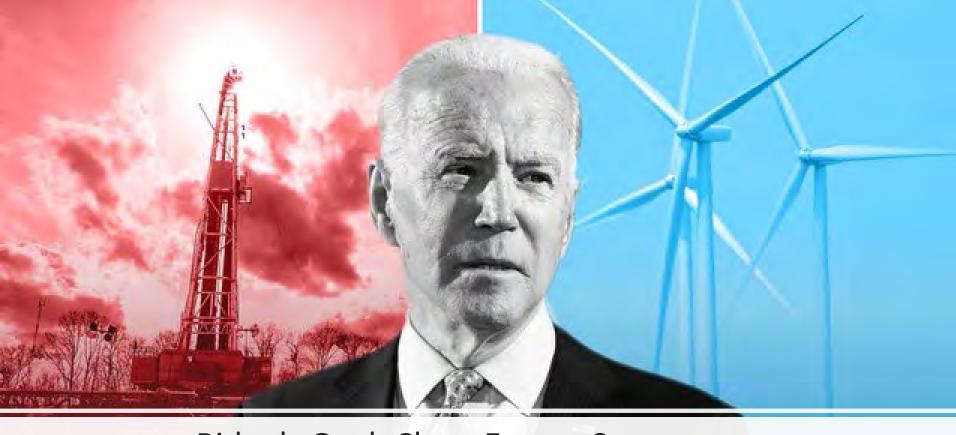


US Replaced Russia as biggest supplier of Crude Oil to EU (2022)



Asia: New Center of Energy Demand





Biden's Goal: Clean Energy Superpower



## The Perfect Storm



February 24, 2022: The End of the Post Cold War Era



The Cold War Never Ended: Contest between Democracies and Autocracies Western Oil and Gas Sanctions on Russia





Trump's Energy Dominance & Diplomacy in War and Trade















EC President von der Leyen: EU to buy \$750 billion in US oil & gas by 2029



Turkov Can Got F 35c if Stone Buying Russian Engrav



Trump's 50% tariff on India for Buying Russian energy



Trump: NATO countries to boycott Russian oil and impose their own tariffs of 50 to 100% on China



"Slowbalisation vs.
Deglobalisation"



## EU-Russia Decoupling in Energy

## End of Russian Gas Diplomacy & Recruiting?



French PM François Fillon Austrian FM Karin Kneissl Austrian Chan. Wolfgang Schüssel Austrian Chan. Christian Kern Finnish PM Esko Aho Finnish PM Paavo Lipponen Italian PM Matteo Renzi German Chan. Gerhard Schroeder The Bridge
Fuel:
Natural Gas &
LNG



The Netherlands: Europe's LNG Gateway

LNG imports 2024: ~21 bcm.

U.S. share: ~14.4 bcm (~68%).

Russia: ~1.9 bcm (个 68% from 2023).

NL redistributes gas to Germany, Belgium, EU.





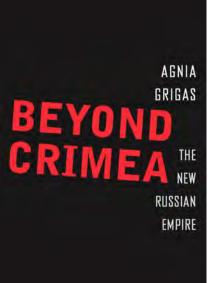
Reliable Energy Suppliers

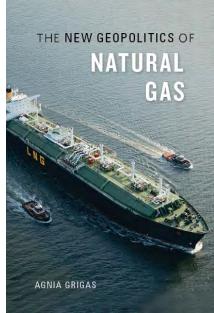


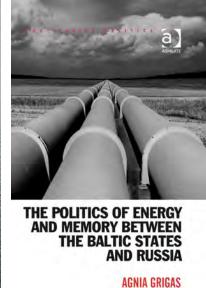


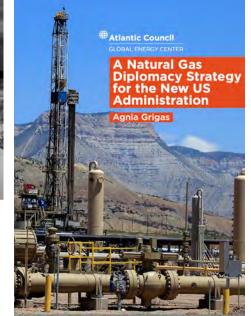












## Thank you!













#### **WORKING FOR A...**

#### Productive & Sustainable

- Healthy marine environment
- Maritime Spatial Planning:
- Sustainable Blue Economy and aquaculture and fisheries

#### Climate - neutral

- Renewable energy/ alternative fuels
- Energy efficiency
- CCUS and natural carbon sinks
- Climate adaptation

#### Connected

- Transnational Accessibility
- Secure and resilient infrastructure and ports
- Clean, inclusive and intelligent transport solutions

#### Smart

- Smart Specialisation Strategies
- Education, qualification, skills/competences, and mobility of researchers, students and workforce
- Circular Economy

NORTH SEAREGION













BÄSTA LIVSPLATSEN



## THE REGIONAL PERSPECTIVE ON THE ENERGY TRILEMMA





# THE ROLE OF REGIONS IN THE ENERGY TRANSITION

Where policy becomes reality

Where innovation happens

Where trust is built





### EnergiNav/EnergyHub Halland





EnergyNay



Empower municipalities to lead their local energy transition



6 pilots where local authority lead the energy planning



Grid operators and local authorities teaming up for smarter local energy



Build data tools to boost capacity to steer their local energy system



COPPER





#### **REDII PORTS**

Renewable Energy Development and Intelligent Implementation in Ports



Testing 13 solutions in 7 countries to advance shore power and clean fuels



Enables ports to generate, store, and use cleaner, affordable energy



Delivers solutions for port communities to drive Europe's green transition



REDII Ports







International regional cooperation

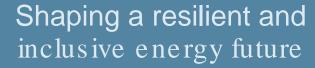












Being ready
Making sure everyone benefits
Involving young people, vocational
training



Making sure transition strenghtens rather than weekens our social fabric





























## Boosting resilience in an age where energy security is redefined by geopolitics

#### Presentation @ Wind Meets Gas

9 October 2025

dr. Louise van Schaik







#### **Contents**

- 1. Geopolitics
- 2. Strategic autonomy & energy
- 3. Energy security redefined
- 4. Dilemmas for Europe
- 5. Contentious issues
- 6. Resilience







Lithuania

Denmark



#### A changing more geopolitical world





#### Strategic Autonomy & Energy

- Every dependency can be weaponised: Gas!
- Clean tech competition + kill switch?
- Scramble for critical resources, CRM!
- Deindustrialisation of Europe and/or shifting value chains?
- More or less US LNG?















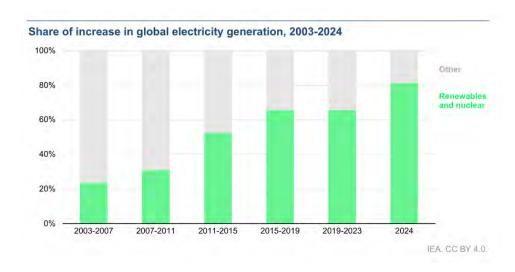


Energy transition Pro's	Obstacles
EU spent €1,3 trillion on fossil energy imports! In energy crisis, >4% of GNI, now >2%	Net congestion
Moving to climate neutrality in 2050	Investment needs
No energy blackmailing	Critical Raw Materials needs
Consumers as producers	Cyber security risks
Less local air pollution	Vital infrastructure risks
More quiet energy provision	Declining fossil markets



## Massive expansion of renewable and nuclear power ...

By 2050 low-carbon energy sources > **80%** of global power generation (energy and electricity)



Solar power is now the cheapest electricity source in most markets, and wind, nuclear, hydro and bioenergy are well-established



**Electricity** 

security =

energy

security

Key=

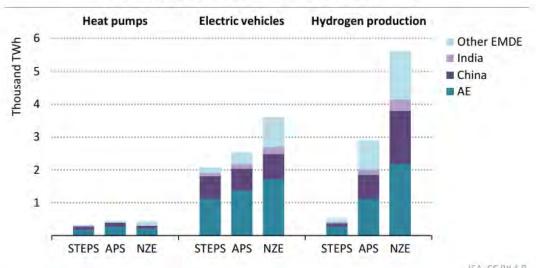
Control

over grids

& copper

#### Age of electricity

Figure 1.12 ▷ Electricity demand growth from selected clean energy technologies by region and scenario, 2023-2035



IEA. CC BY 4.0.

Electrification of road transport and electrolytic hydrogen production to tackle emissions in hard-to-abate sectors significantly boosts electricity demand in transition scenarios



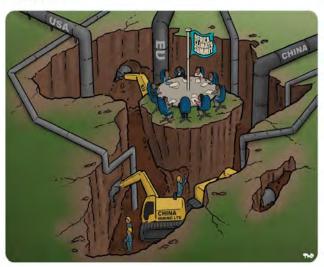
#### Dilemma 1: how others see us

#### Developed countries' 'green colonialism' is more covert, hazardous exploitation and plunder





#AfricaClimateSummit #Africa #resources #mining #exploitation #neocolonialism



## Climate colonialism and the EU's Green Deal

By employing corporate solutions for climate change, the EU's Green Deal will entrench further European neocolonial practices.



Fossil fuels blackmailing, energy independence at what cost?

**EUROPEAN** 



#### Qatar threatens EU corruption accusations could impact gas de



Saudi Arabia, Qatar and Egypt rank in top 10 largest arms importers over past 5 years

German Parliament Takes Azerbaijan Corruption Seriously – Finally

Bundestag Disciplines Karin Strenz MP for Hiding Money From Baku

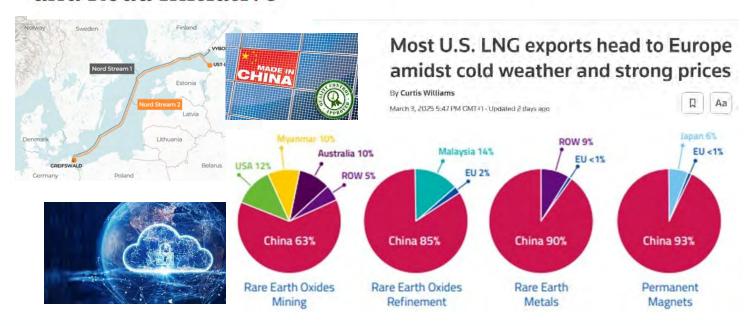
Blackmailed through gas again. Qatar-gate adds up to EU dependency on gas



China-EU relations

China / Diplomacy

Exclusive | EU includes companies linked to Beijing on board of Global Gateway, its alternative to China's Belt and Road Initiative





#### Climate/energy transition

- Pace of transition, for does affect petrostates, interests/ dependencies
- Implementation: ownership with other tracks?
  - Climate as threat: hard or human/ economic security?
  - Climate as economic opportunity: green growth paradigm
- Partners for EU: China? US? CRM/hydrogen rich countries? private sector?
- What about hard to abate sectors, e.g. defence emissions (!)
- Just transition: contradictio in terminis?







#### Will the EU come to the rescue?









Commissione.

REPowerEU





European Investment Fund



#### **Contentious** issues

Climate policy package for 2040?

Supporting clean tech at what cost? Hydrogen, Northvolt, etc.

EU member states alleingang

Green industrial policy = protectionism? market vs state intervention

Cheap gas from Groningen?! Nuclear from Germany?

Support for climate policy interventions waning?

Buying more LNG from US?

Chinese subsidized overcapacity flooding EU market?



## Resilience: EU energy transition boost for prosperity, peace & stability

- Renewables increase global energy access levels
- Less price volatility, supply disruptions
- Reduce dependencies on petrostates & costs of fossil energy imports
- Expand number of energy producing countries leading to a more balanced energy market ∫
- Mitigate climate change



#### Resilience: North Sea as new energy reservoir





### Thank you!

dr. Louise van Schaik, Head of Unit EU & Global Affairs, Clingendael Institute, <u>Ischaik@clingendael.org</u>













### **An Overview of Offshore Wind**

'All Together Now'

Jan Vos | Wind Meets Gas | Groningen | October 9, 2025



Powered by wind energy

**300 members** in the Offshore & Onshore Wind Industry

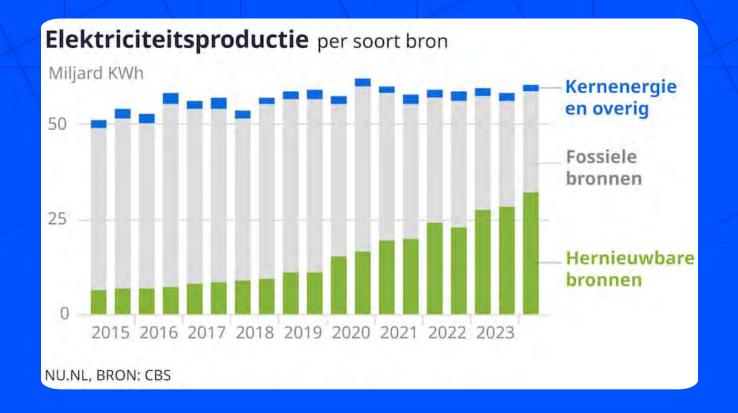
■ Wind Park developers ■ Supply Chain companies ■ Ports ■ Consultancies

Lobbying

Business development Internationalisation

WindEurope, WindEnergie Hamburg, OEEC Amsterdam NSEC region, Baltic Sea, Spain, Portugal & Ukraine

# Over half of the power produced in the Netherlands now is produced by renewables such as solar and wind.





#### **Current State of Affairs**

- 4,7 GW operational, 1,5 GW under construction
- **15 GW** planned under this Roadmap, update in 2026
- Current objective: 21 GW in 2032 Nederwiek I-A (10/25), IJmuiden Ver Gamma Too ambitious? Search areas scrapped due to other North Sea interests (O&G, fisheries, defence)
- Government lowered OW-target for 2040 from 50 GW to 30–40 GW, while 2050 target of 70 GW still stands

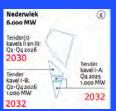








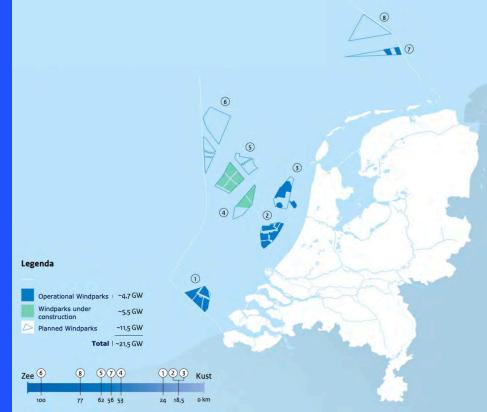








# Offshore Wind Energy Roadmap 21 GW



### Things are currently not too bright...



De aanleg van windmolens op land Q klimaatdoelen voor de langere terr te raken. Volgens de Rijksdienst vot Nederland (RVO) is vorig jaar maar windmolens bijgebouwd.

Redactie 12 mei 2025, 01:57



Windturbines langs bloeiende bollenvelden op het plattel

#### Het Parool

Verder in het nieuws

Amsterdam

Aanleg windmolens op land hapert, klimaatdoelen raken uit zicht: 'Het gaat gewoon even niet zo goed'

Kunst & Media

Uit in Amsterdam



### Dutch postpone offshore wind farm tenders due to low interest

By Reuters

May 16, 2025 6:25 PM GMT+2 · Updated a month ago



FILE PHOTO: A wind farm is seen at sea near ljmuiden, Netherlands, September 25, 2023. REUTERS/Piroschka van de Wouw/File Photo Purchase Licensing Rights [7]





#### Mobilizing consumer demand for sustainable investments

Potential role of demand-side policies to stimulate investments in more sustainable products and strengthen European heavy industry

September 2025



#### Demand site falters...

**Throughout Europe, failing tenders** 

Already permitted projects ran into difficulties in the Netherlands

Noordzeker (SSE Renewables/ABP/APG) o IJmuiden Ver Alpha

Zeevonk (Vattenfall/CIP) o IJmuiden Ver Beta

#### Government response → Action Plan for Offshore Wind

- **Temporary support** ≈€ 1bn for 2026 tenders (2 GW)
- Working towards a CfD from 2027 onwards for price certainty
- **Demand creation**: speeding up industrial electrification while minimising electricity prices and grid congestion

#### Government prioritises direct industrial electrification

→ Action Agenda Electrification Industry

#### Challenge for the future: demand creation

→ Deloitte: mobilizing consumer demand for sustainable developments











Other reasons for stalling roll - out of offshore wind



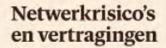
Kapitaalkosten zijn fors gestegen

Hoge risico's, zonder prijszekerheid





Kosten zijn gestegen door schaarste



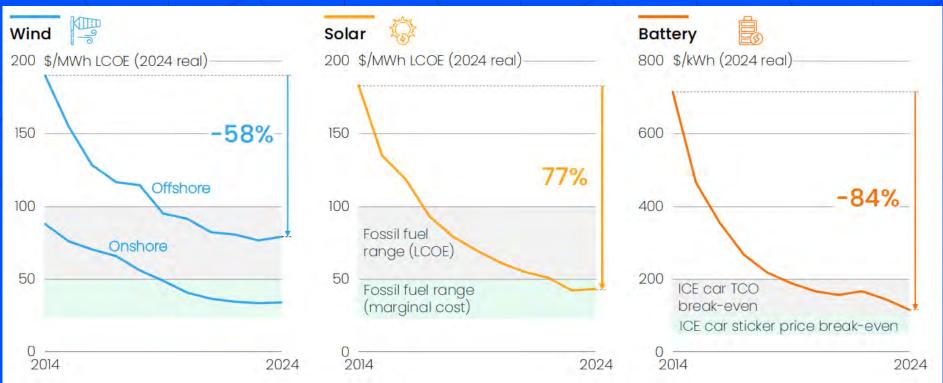




Politiek & marktdesign lopen achter



### Increasing demand will continue to drive prices down



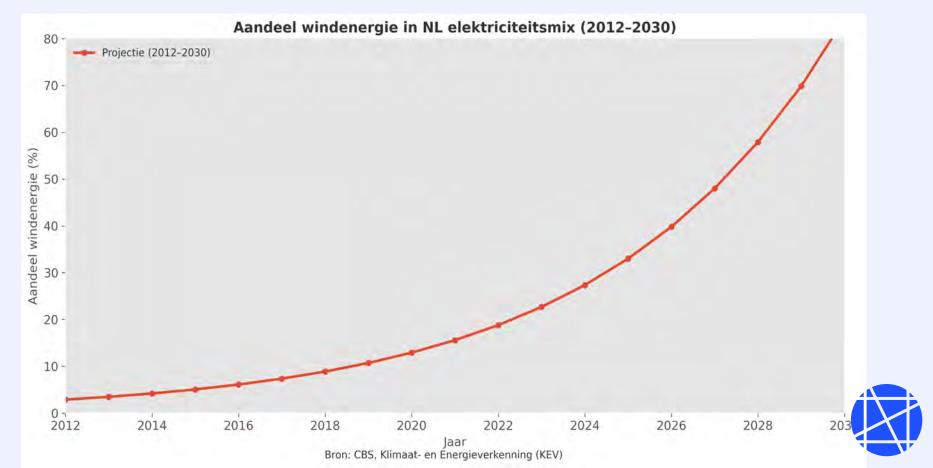
### Offshore wind has been subsidy-free from 2018 to 2025



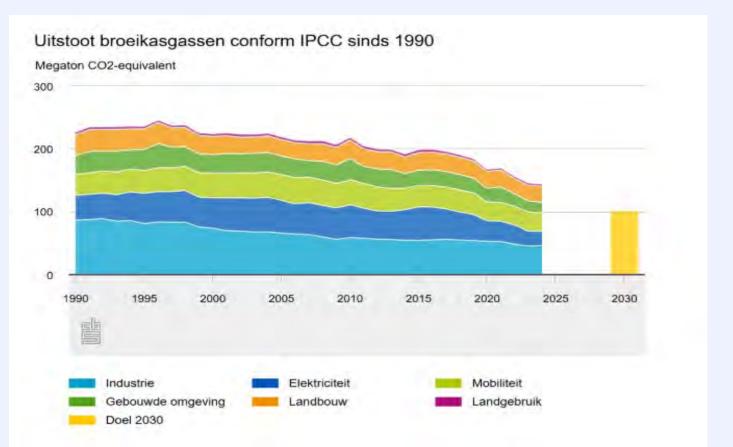


Source: Algemene Rekenkamer, Klimaatweb

### ...the only way is up

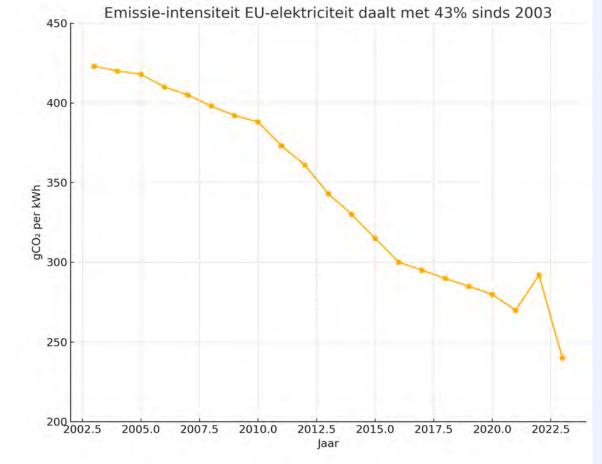


### ...and our CO2-emissions are going down





# Emissieintensiteit EUelektriciteit sinds 2003



Deze grafiek is gemaakt op basis van historische gegevens over de emissie-intensiteit van elektriciteitsproductie in de EU (uitgedrukt in gram CO<sub>2</sub> per kilowattuur), afkomstig van de European Environment Agency (EEA). De data is gecombineerd met recente cijfers uit de databank van Ember Climate. Bron; European Environment Agency (EEA), bewerking: Ember Climate / NedZero





## WIND POWER

POLITICAL FRAMING



Energy Independence and Geopolitics

Addressing Climate Change





28 apr 15:33

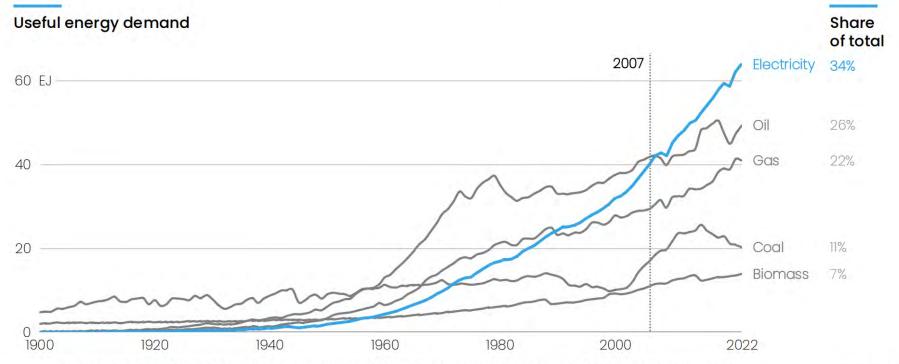
### Eurocommissaris Jørgensen: 'Voor wat we aan Rusland betaalden, konden we 2400 F-35's kopen'



De invoer van Russisch gas is volgens Eurocommissaris Dan Jørgensen totaal

### Electricity is the dominant form of final energy use

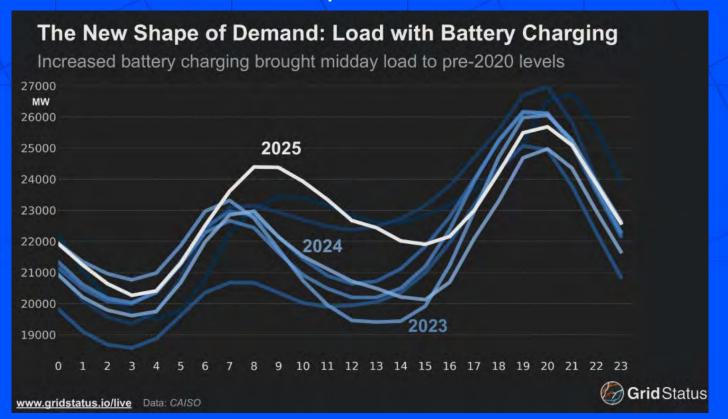
Electricity overtook oil as largest supplier of useful energy in 2007



Sources: IIASA, IEA, Ember analysis. All figures exclude feedstock use. Useful energy demand refers to the amount of energy used to perform a specific task, after accounting for energy losses in the process



# Increasingly, battery capacity is solving the short-term mismatch between production and demand





# Large scale power grids based entirely on solar, wind and batteries are becoming reality

South Australia to reach 100 pct wind and solar within a few years, says network company





### Wind statistics Texas, U.S.

- 42 GW installed capacity (2025)
- 19,000 turbines operational in 2025
- 26,135 jobs created in wind energy in 2022

• \$1.7 billion added to the GDP by wind power generation in 2021



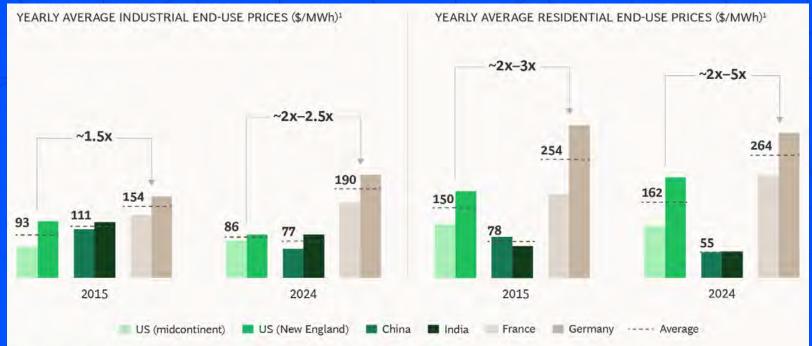


# The power grid needs an additional capacity mechanism (10-15%)

- Guaranteeing security of supply
- Technology-neutral approach
- Sustainability criteria
- Generation (solar, wind)
- Storage (battery, H2)
- Consumption (Demand Side Response)

Competition for the best and most cost-effective solutions

### Electricity costs are higher in Europe than in other regions

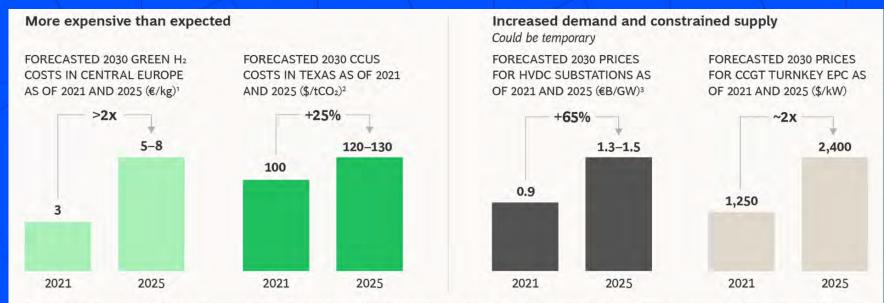


Sources: OECD; US Energy Information Administration; IEA; Eurostat; Statista; BCG analysis.

Note: US electricity prices vary considerably by region; midcontinent and New England prices are shown to reflect the range of prices nationally. MWh = megawatt-hour. | | All prices are expressed in constant 2015 dollars.



# Some key technologies are expected to be more expensive than previously forecasted



Sources: IRENA; BloombergNEF; IEA; TenneT; Amprion; 50 Hertz; Reuters; Dragados; OE Digital; GE Vernova; National Grid; Offshore Wind; Enerdata; 4C; SSEN Transmission; NeuConnect; Terna; EIB; Sumitomo Electric; Renewables Snow; EIA; S&P Global; BCG Hydrogen Cost Model; BCG CCUS Cost Model; BCG analysis.

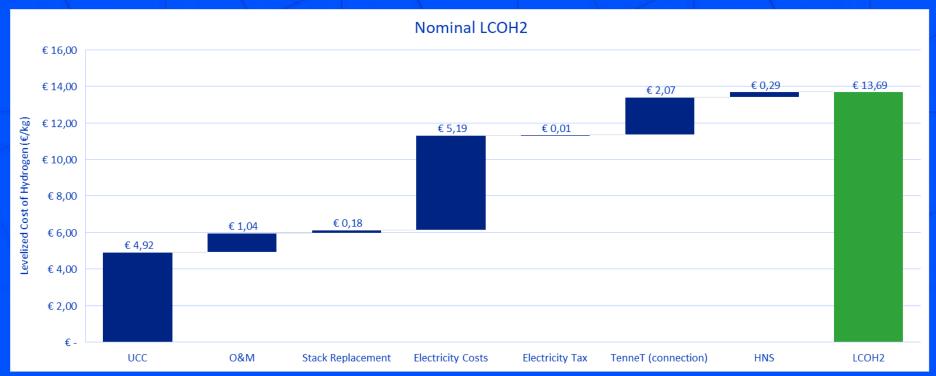
Note: B = billion; CCGT = combined cycle gas turbine; CCUS = carbon capture and storage; EPC = engineering, procurement, and construction; GW = gigawatt; HVDC = high-voltage direct-current; kg = kilogram; kW = kilowatt: tCO<sub>2</sub> = tons of carbon dioxide.

<sup>&</sup>lt;sup>1</sup>All prices are expressed in constant 2025 euros.

<sup>2</sup>All prices are expressed in constant 2025 dollars.

<sup>&</sup>lt;sup>3</sup>Projects with one offshore substation and one onshore substation.

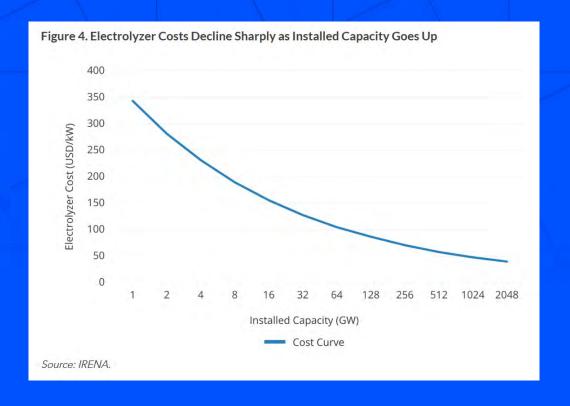
### Nominal levelized cost of hydrogen NL



Source: TNO, Evaluation of the levelised cost of hydrogen based on proposed electrolyser projects in the Netherlands, June 2024



# Each doubling of installed capacity could reduce electrolyzer manufacturing costs by 16% to 21%





### Factors Driving High Green Hydrogen Costs

Four primary barriers preventing significant cost reductions for green hydrogen production:

- 1. Electrolyzer manufacturing costs
- 2. Limited economies of scale
- 3. Decarbonization challenges in key sectors
- 4. Reliance on incentives and policies



### Final remarks

- Hydrogen is essential in a fully CO<sub>2</sub>-free electricity system, both for long term storage and as a feedstock
- Stimulation through lead markets is essential for both wind and hydrogen
- The North Sea is ideally suited for onshore hydrogen production,
   with ample space and access to industrial sites (e.g., Eemshaven)
- Direct electrification is more efficient, where possible





Thank you for your attention

Questions & Reflections







### Powering the Transition: Offshore Wind meets Green Hydrogen















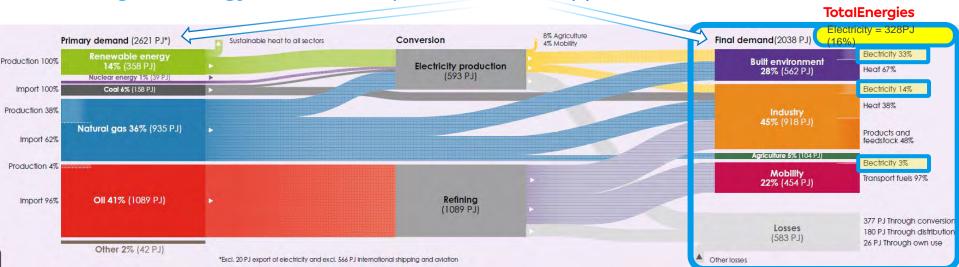


SOLAR

Arnaud Wyers – TotalEnergies Wind meets Gas October 9th, Groningen

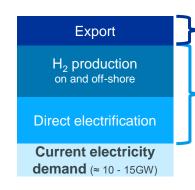
### Energy balance (excl. shipping & aviation)

Achieving the energy transition requires a holistic approach



Source: EBN 2024

**70GW** Offshor e Wind goal for 2050



- Larger interconnection capacity needed
- Current plans ramp up slower than OFW growth
- Demand lagging
- Congestions onshore
- Grid investments needed

Without sufficient development of demand, Offshore Wind business case is at risk



### Opportunities to push electrification







Support investments in electrification e.g. lower grid tariffs, correcting the uneven playing field





Stimulate green H<sub>2</sub> production (REDIII transposition)



Implementing demand that naturally matches offshore wind production



Avoiding congestions and preventing unnecessary investments in grid



Helping Dutch industry decarbonize with locally produced green H<sub>2</sub>



Reducing dependency on Natural Gas imports

Significant capacity (GigaWatts) is ready but requires the right conditions to proceed to FID

### Decarbonizing current demand needs ~15GW of offshore wind

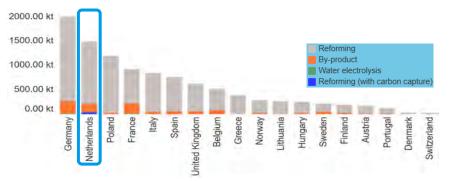


#### With the potential to become a H<sub>2</sub> roundabout, leveraging NL context

NL currently **#2 H<sub>2</sub> producer** and consumer in Europe. Current production emits ~15MtCO<sub>2</sub>/y

Use (2023)	Kton
Ammonia	480
Refinery	544
(Food) industry	143
Methanol	102
Other uses	231
TOTAL	1,500

- Large Offshore Wind capacity creates a potential for conversion to green H<sub>2</sub>
- 12GW offshore electrolysis potential by 2050 (~900kt/y)
- Potential for H<sub>2</sub> storage in salt caverns on and offshore
- Innovation powerhouse regarding H<sub>2</sub> storage, offshore electrolysis







# High-impact projects reducing 450kt/y of CO<sub>2</sub> emissions



- √ 45,000 tons per year of green H₂ produced by the OranjeWind offshore wind farm developed by TotalEnergies (50%).
- √ 450,000 tons per year reduction of CO₂ emissions from TotalEnergies' Antwerp and Zeeland refineries.
  - An electrolyzer jointly developed in the Netherlands with Air Liquide to supply the Zeeland refinery.
  - A tolling agreement on a second electrolyzer built and operated in partnership with Air Liquide to supply Antwerp platform.
- $\Rightarrow$  TotalEnergies is also developing **CCS** (Aramis), **BESS, EV** charging and  $H_2$  mobility in the Netherlands



### **Oranjewind – Partners and tangible investments**

50% RWE

Wind turbine

50% TotalEnergies Installed capacity: 795 MW

# oranjewind

#### **Key partners**

















TenneT substation











#### **Key characteristics**

**Turbines** 53x **Foundations** Monopile O&M Base Den Helder BluePortCenter (~80 kms to OranjeWind) Onshore: System Integration

Electrolysis E Boilers

**Batteries** 

